

Appl. No. 09/869,532
Amdt. dated Aug. 13, 2003
Reply to Office action of Feb. 13, 2003

REMARKS/ARGUMENTS

In view of both the amendments presented above and the following discussion, the applicant submits that none of the claims now pending in the application is obvious under the provisions of 35 USC § 103. Furthermore, the applicant also submits that all of these claims now satisfy the requirements of 35 USC § 112. Thus, the applicant believes that all of these claims are now in allowable form.

If the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, the Examiner is urged to telephone Edward M. Fink, Esq. at (732) 906-5654 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Specification amendments

An Abstract of the Disclosure is enclosed. Other specification amendments have been made in response to the office action.

Claim Amendments

Claims 1-37 are currently in the application.
Claims 38-47 have been cancelled.

Rejections under 35 USC § 112

Claims 1-37 stand rejected under 35 USC § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

The Examiner's comments with regard to claim 1 are accurate and in order to obviate the limitations thereof, the claim has been amended to reflect the modifications suggested by the Examiner.

Claim 11 has been amended to obviate the ambiguities noted by the Examiner.

Claims 12, 13 and 15 have been amended by inclusion therein of proper Markush groups.

The Examiner raised an objection with regard to the term "relatively low" in claim 20. This term is used to define the surface tension of parts of the product remaining clear of the coating with regard to the surface tension of the coating itself. However, to clarify the terminology the claim has been amended to reflect the fact that the surface tension of non-coated area is kept lower than the surface tension of the coated area.

The Examiner has also raised an objection with regard to claim 32 in the use of the term "relatively dense". This limitation has been overcome by amendment of the claim by inclusion of the term "denser than". Accordingly the ambiguity is no longer present.

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Claims 36 and 37 were found objectionable in the definition of volume per cent. Once again, this limitation has been obviated by substitution of the language proposed by the Examiner.

In light of the foregoing, it is believed that all 35 USC § 112 rejections have been obviated and it is urged that the rejection be withdrawn on these grounds.

Rejections under 35 USC § 103

Claims 1-22 and 26-33 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,683,772.

The Examiner urges that Anderson et al disclose a method for manufacturing coated products comprising forming a base product from a mass containing starch as a natural polymer in a heated mold cavity similar to those employed in injection molding such that cross linking of the natural polymer occurs at which juncture one or more organic coatings or a mixture thereof with an inorganic coating is applied to the surface of the base product.

The Examiner goes on to note that the patentees fail to (i) teach that part of the base is covered with first and second coatings and another part covered only with the first or second coating and (ii) fail to teach that the first coating has a surface tension equal to or lower than the surface tension of the surface of the base product. However, the Examiner goes on to conclude that it would have been obvious to one skilled in the art to have covered some

parts of the base product of Anderson et al with one coating only and other parts with two coatings with the expectation of providing surface characteristics of the coated product depending upon intended use of the final product.

The Examiner then proceeds to urge that the patentees disclose the importance of selecting variable properties of a substrate to be coated and concludes that it would be obvious to one skilled in the art to formulate a composition for a first coating in Anderson et al with the use of surface tension reducing agents to obtain the characteristics sought by applicants. This rejection is traversed as follows:

Anderson et al disclose a method for the preparation of coated products by forming a base product from a mass containing starch as a natural polymer in a heated mold cavity. Molds suitable for this purpose could be chosen from among conventional injection molding equipment. However, the patentees did not recognize nor appreciate that these products may be injection molded. The heating sequence employed is used to effect cross linking of the natural polymer (column 56, lines 12-21). The Examiner urges that it would be obvious from Anderson et al to apply one or more organic coatings with or without an inorganic coating to the surface of the formed base product (column 66, line 42). However, this conclusion is in error. Column 66, line 42 clearly indicates that inorganic coatings may be mixed with one or more of the organic coatings set forth above. This clearly indicates that by mixing various coatings, one new coating is obtained which is applied to the surface of the product. Absent from the Anderson et al

disclosure is an indication that less than the whole surface is provided with the coating. In fact, Anderson et al lead one skilled in the art away from applying various coatings over at least part of a product surface, one coating on top of another. Accordingly, the method described and claimed by applicants is clearly novel and neither disclosed nor contemplated by Anderson et al.

In the instant invention, two layers of a coating are applied to a product surface, one layer overlapping the other at least partially, each layer comprising a different coating. This procedure results in differing characteristics for different sections of the resultant product. In marked contrast therewith, Anderson et al only disclose the use of one layer of a coating (comprising organic materials, inorganic materials or mixtures thereof) applied to the entire surface of a product in order to achieve uniform characteristics over the entire product surface. Accordingly, the Examiner's contention that it would have been obvious to one skilled in the art from a review of the Anderson et al disclosure to apply two layers of two different coatings, one overlapping the other is based solely on conjecture and has no valid basis.

Since the Anderson et al, reference does not disclose the use of two different layers of different coatings, one over the other, the contention that it would have been obvious in view of the disclosure of U.S. Patent No. 4,098,742 and/or U.S. Patent No. 4,172,064 to do what applicants are claiming is in error.

In light of the foregoing, it is urged that the rejection of claims 1-3 be withdrawn.

With regard to claim 4, the Examiner urges that Andersen et al disclose that a starch based mass can be used as a substitute for a conventional paper-forming mass because the starch-based mass yields containers and other articles of similar cross-section having comparable mechanical properties comparable to those made from a conventional paper forming mass. The conclusion is drawn that the molded product of the patentees can also be made from a conventional paper forming mass.

Andersen et al disclose (column 6, lines 5-10) that their product should be a replacement for more expensive products such as those made of paper, paper board and the like. Accordingly, one skilled in the art would be lead away from the concept of providing a mass similar to a paper forming mass. Although the Examiner's contention is accurate regarding the mass which is formed substantially from the same components as a paper forming mass. However, this concept is neither taught by or disclosed by Andersen et al. Accordingly, it is urged that the rejection of claim 4 be withdrawn.

With regard to claim 5, the Examiner notes that mold release agents such as silicones, waxes in an amount ranging from 0.05-15% by weight of the total solids are incorporated into the mass to improve release of the molded product from the mold. The Examiner urges that the silicon

release agents function substantially identically to those of applicants because they are added in the claimed amounts to the mass. This rejection is traversed as follows:

Andersen et al do not disclose or appreciate that it is desirable to incorporate in the at least one mass a release agent in an amount such that during the heating cycle a portion of the release agent egresses from the mass and bonds to the wall of the mold. In the preparation of successive products in the same mold a substantially constant layer of release agent always is present. The patentees merely disclose that silicon can be used as a release agent but fail to suggest or teach that adding of about 0.2% of a release agent, such as silicon, to the mass would lead to a substantial enhancement in the product.

With regard to claim 6, the Examiner notes that it is well known to use silicones as surface reducing agents, as disclosed by U.S. Patent No. 3,977,888 (Sano et al). Applicants contend that the naked disclosure of Sano et al does not suggest the use of surface agents in a mass and therefore does not disclose what applicants are claiming.

Claims 7 and 8 stand rejected as being unpatentable over Andersen et al on the ground that the patentees molded product comprises the same components as claimed by applicants, namely starch, cellulose fibers, silicones, etc. This rejection is traversed as follows:

The patentees disclose a plurality of examples of masses and coatings but fail to disclose or appreciate the specific surface tensions of coatings and masses employed.

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Claims 7 and 8 disclose a specific choice selected from a large range of combinations having characteristics which are not disclosed by Anderson et al. Accordingly, it is urged that this rejection be withdrawn.

The Examiner notes that claim 10 recites a water based system is used for coatings and concludes that it is a one phase system because silicones or waxes are used in an amount as little as 0.05-0.2 weight %. Although silicones and waxes are used by Andersen et al, and they disclose applying the coating to a hot product in or outside of a mold. However, absent from the reference is a disclosure of spraying at a product at the ambient temperature.

The Examiner further urges that claims 12-16 which disclose organic coating compositions comprising epoxy resins and the like are well known in the art. Applicants concede this fact but when included with the limitations of the base claim a method not contemplated by any of the prior art or rendered obvious. The same reasoning applies to claims 17-19.

The arguments set forth above by applicants with regard to claim 1 are deemed to apply with equal cogency to claim 20.

Claim 21 stands rejected as being unpatentable over Andersen et al in view of U.S. Patent No. 3,601,862 (Hargadon). The Hargadon reference discloses the use of two synthetic, plastic materials integrally joined to a strip body using a so called 2K-injection molding process. However, absent from such disclosure is any suggestion of

the use of 2K-injection molding for producing natural polymer such as starch based products. Contrary to the Hargadon technique, applicants disclose heating a mold and the mass is injected at a relatively low temperature, close to or at ambient temperature in order to prevent premature gelatinization and/or cross-linking. Andersen et al do not disclose such technique nor do they appreciate the advantages attained thereby. Furthermore, Andersen et al have not recognized the advantages of using injection molding for such products. Accordingly, it is urged that this rejection be withdrawn.

With regard to claim 26, although Andersen et al may use dipping for coating, they do not disclose a method in which a cavity of a molded product is filled with a coating which is then tipped in order to empty it.

Claims 27-32 stand rejected over Andersen et al. The Examiner urges that the patentees disclose that water may be used in a coating for conditioning the product. However, the patentees do not disclose a first step in which an agent is provided on or at least part of the base product, the agent influencing the properties of the relevant product part. Additionally, in a second step applicants apply the at least one coating to the relevant product part. In the patented technique, this is a one step process as contrasted with applicants two step technique.

The Rusincovitch, Jr. reference may disclose the use of silicon oil, it is added to a coating composition rather than being applied first before addition of the first and second coatings. Since Andersen et al do not disclose

the use of two coatings any combination therewith does not negate the patentability of the claims.

The Examiner urges that claims 23 and 24 lack inventive steps over Andersen et al in view of U.S. Patent No. 3,659,787 (Ito). The latter discloses airless apparatus for atomizing and spraying coating material to reduce the amount of coating materials sprayed.

Andersen et al disclose the use of spraying techniques for the purpose of applying coatings. However, absent from the references standing alone or in combination is any suggestion to combine these two expedients. Accordingly, the rejection on this ground is not tenable.

Claims 34-37 stand rejected under 35 USC § 103(a) as being unpatentable over Andersen et al in view of Rusincovitch, Jr. Neither Andersen et al or Rusincovitch, Jr. disclose the use of silicon oil in an amount ranging from 0.5 to 15 volume% and clearly not in the preferred range of 2-10 volume % of silicon oil. Rusincovitch, Jr. in contrast to applicants teaching, teach away from the use of a quantity of silicon oil less than 2.5 weight % since that would be unacceptable. Accordingly, the lower level pursuant to the present invention is not obvious. Furthermore, the patentee notes that more than 5 weight % is also undesirable. Thus, the upper limits are also non obvious over the Rusincovitch disclosure. Applicants vigorously contend that it is inventive to determine the optimum of workable ranges since the amounts specified provide for extra effects, especially at the lower ranges since silicon oil is used to influence the properties of the

mass, provides for the required surface tension and acts as a release agent. Each of these effects might be known independently but not in combination in the specified ranges. Accordingly it is urged that these claims are novel and represent an advance in the art.

In conclusion, it is urged that the Andersen et al reference does not disclose the use of two different layers of coating, one present over at least part of the other, the coating manifesting different characteristics. The patentees merely disclose the use of a mixture of different coatings which result in a new single contact layer.

Conclusion

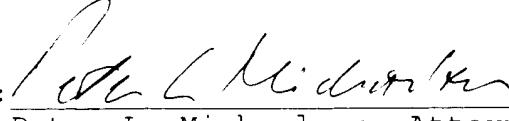
Thus, the applicant submits that none of the claims, presently in the application, is obvious under the provisions of 35 USC § 103. Furthermore, the applicant also submits that all of these claims now fully satisfy the requirements of 35 USC § 112.

Consequently, the applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

Respectfully submitted,

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